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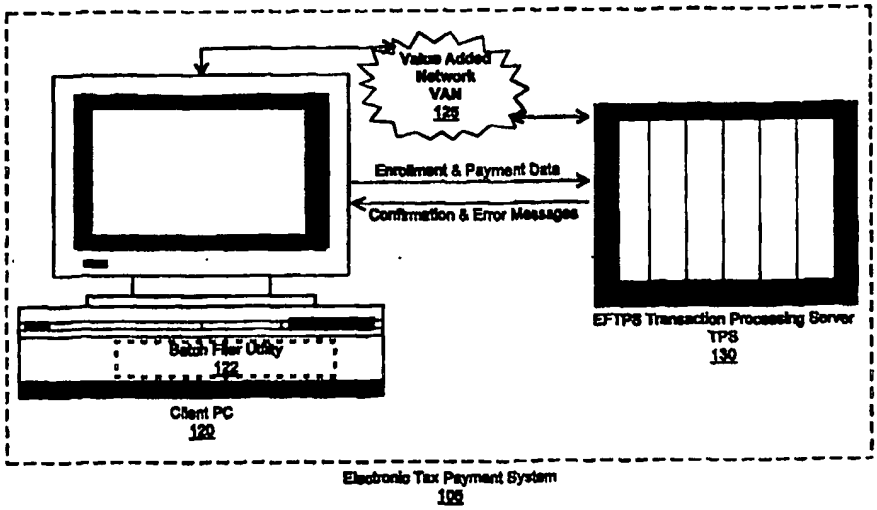

(57) Abstract

According to the invention, a method and apparatus are provided for facilitating the electronic submission of batch input to a tax system, such as the Electronic Federal Tax Payment System (EFTPS). Embodiments of the invention import and validate the data necessary to initiate enrollments and submit tax payments using a personal computer. Embodiments of the invention include a communications module that transmits enrollment and payment transactions to the EFTPS and receives transaction confirmations or error messages in response.

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ELECTRONIC TAX PAYMENT SYSTEM

Field of the Invention

The present invention relates to the entry of tax data into a computer system and, more particularly, to the remote batch entry of multiple taxpayer enrollment and tax payment transactions into the Internal Revenue Service's Electronic Federal Tax Payment System.

Background of the Invention

The Electronic Federal Tax Payment System (EFTPS) is an automated system for remitting federal tax payments to the Internal Revenue Service (IRS). The EFTPS accepts and processes information for all types of federal tax payments from individuals, businesses, and third party filers (*e.g.*, payroll processors, banks, or other fiduciaries that specialize in tax preparation and payment submittal on behalf of others). The IRS and the Federal Management Service selected two banks to implement the EFTPS. Each bank, acting as a Treasury Financial Agent (TFA), has jurisdiction over a specific geographic region. Based on their principle location, electronic filers are assigned to the TFA that handles the region in which the filer is located. Each TFA operates a Transaction Processing Server (TPS) on which its EFTPS application runs. The EFTPS application accepts electronic payments, passes the payment details to the IRS, and initiates the electronic transfer of funds into the United States Treasury account.

Prior to remitting federal tax payments electronically, a taxpayer must be enrolled in the system. Once enrolled, the taxpayer (or a third party filer acting on the taxpayer's behalf) uses a front end interface to the EFTPS to submit the information necessary to make payments. Several front end interfaces are presently available for communicating with the EFTPS.

One interface, the "Audio Response Unit" (ARU), accepts payment data over a touch tone telephone. The ARU collects the data related to a single payment through a series of prompts. Each payment transaction takes about two to three minutes to complete. While the ARU can accept multiple transactions in one session, it is an inefficient system for third party filers who submit more than ten transactions per day.

Therefore, another front end interface to the EFTPS is available for electronic filers submitting more than ten transactions per day. This interface, implemented by computer software that runs on a personal computer, is referred to herein as the "PC Product." By means of an interactive graphical user interface, the PC Product collects the data for multiple tax payments. After all the data is entered, the PC Product's communications module transmits the data to the EFTPS. Although using the PC Product is more efficient than using the ARU for entering multiple electronic tax payments, the PC Product has a limit of 100 payments per transmission. Consequently, third party filers submitting more than 100 transactions must initiate multiple transmissions, once again resulting in inefficiencies.

Yet another front end interface to the EFTPS is, therefore, available to third party filers that submit more than 1,000 payment transactions on a peak day ("bulk filers"). This interface, referred to herein as the "Bulk Filer Product," supports a transmission capacity of 20,000 payment transactions in one session. The Bulk Filer Product also provides functionality for electronically enrolling taxpayers in the EFTPS, eliminating the need to submit enrollment paperwork. Electronic enrollment reduces the turnaround time between submitting an enrollment and receiving notification of the enrollment's status to a maximum of three days, compared with up to ten weeks (usually 10-28 days) for paper processing.

Given the features and limitations of the above-described interfaces to the EFTPS, large volume third party filers (*e.g.*, those submitting more than 1,000 transactions per day) are considered by some to have a competitive advantage in the third party tax payment services market compared with medium volume third party filers (*e.g.*, those submitting between 100 and 1,000 transactions per day). First, to be eligible to submit multiple payment transactions with the Bulk Filer Product, a third party filer must process at least 1,000 payment transactions on a peak day. Although medium volume filers can submit multiple payment transactions with the PC Product, the 100 transactions per transmission limit necessitates multiple transmissions, which reduces processing efficiency. Second, because the PC Product does not support the electronic enrollment of taxpayers into the EFTPS, time consuming paper processing is required.

Accordingly, there is a need for an improved interface for the electronic submission of input to a tax system that offers advantages over other interfaces.

Summary of the Invention

According to the invention, a method and apparatus are provided for facilitating the electronic submission of batch input to a tax system, such as the Electronic Federal Tax Payment System (EFTPS). Embodiments of the invention import and validate the data necessary to initiate enrollments and submit tax payments using a personal computer (PC). Embodiments of the invention include a communications module that transmits enrollment and payment transactions to the EFTPS and receives transaction confirmations or error messages in response.

Certain embodiments of the invention offer many advantages including, without limitation, the following:

a system for accepting and validating that batch data input comprising taxpayer enrollment and tax payment transactions is properly formatted for subsequent processing;

a system for verifying the number and total dollar amount of tax payments in a batch file prior to submitting the file for processing;

a system for efficiently transmitting a batch of tax transactions for processing;

a system for initiating and terminating taxpayer enrollment in the EFTPS;

a system for receiving and reporting timely responses from the EFTPS; and

a system incorporating communications software configured to connect with the EFTPS.

These and many other advantages of certain embodiments of the invention will become apparent to those skilled in the art from the detailed description below.

Brief Description of the Drawings

An understanding of one or more embodiments of the invention may be gained by considering the following detailed description in conjunction with the accompanying drawings, in which:

FIG. 1 illustrates a high level diagram of an embodiment of an Electronic Tax Payment System in which the invention might operate.

FIG. 2 shows a flow diagram of the major functions of one embodiment of the invention.

FIG. 3 shows a flow diagram of the file send procedure of one embodiment of the invention.

FIG. 4 shows a flow diagram of the file receive procedure of one embodiment of the invention.

FIG. 5 shows a flow diagram of the options procedure of one embodiment of the invention.

FIG. 6 shows a flow diagram of the test procedure of one embodiment of the invention.

Detailed Description of Preferred Embodiment(s)

FIG. 1 illustrates a high level diagram of an embodiment of an Electronic Tax Payment System 105 in which the present invention might operate. Electronic Tax Payment System 105 includes any number of client personal computers (PCs), one of which is illustrated by Client PC 120. Batch Filer Utility 122 is a file import/export utility that can be used by third party filers to exchange files electronically with the Electronic Federal Tax Payment System (EFTPS). In Electronic Tax Payment System 105, an embodiment of Batch Filer Utility 122 is installed on Client PC 120. Batch Filer Utility 122 communicates with an EFTPS Transaction Processing Server (TPS), one of which is illustrated by TPS 130. Communications between Batch Filer Utility 122 and TPS 130 take place over a Value Added Network (VAN) 125, such as one operated by CompuServe or MCI, using a communications protocol, such as Transmission Control Protocol/Internet Protocol (TCP/IP). Those skilled in the art understand that TPS 130 could also be referred to as a "host" and that Batch Filer Utility 122 could exchange files electronically with any electronic tax payment system (*e.g.*, a state or local system).

Herein, the term "user" refers to a third party filer using Batch Filer Utility 122. The following description includes details about the content and structure of files that a user exchanges with TPS 130 using Batch Filer Utility 122. The description also includes details about how a user implements and operates Batch Filer Utility 122.

Tax Data Files

Prior to using Batch Filer Utility 122, a user creates tax data files that will be imported and transmitted to TPS 130 for processing by Batch Filer Utility 122. The data within tax data files is organized into records, and basic rules ("basic tax data file rules") govern the number and contents of the records. The following table includes examples of basic tax data file rules.

Table A: Basic Tax Data File Rules

1.	No more than 750 records can be imported at a time.
2.	Each record must be an ASCII text string (*i.e.*, no formatting characters).
3.	The data fields within a record must be of a fixed length (described in detail below for each file type).
4.	The Batch Filer ID, Master Inquiry ID, File Date, and File Sequence Number must be identical for all records in the file.
5.	Account Numbers must be entered either left justified and space filled to the right, or be right justified and zero filled to the left.
6.	No decimals, commas, or dollar signs should be used.

Those skilled in the art will appreciate that none of the basic tax data file rules are absolute Batch Filer Utility 122 requirements. For example, one rule that could be modified is the limit of 750 records per file. This limit is not a technical requirement; rather, it is imposed to ensure that one user does not monopolize a communications line for extended periods of time. Another rule that could be modified is the requirement that the data fields within a record have a fixed length. Instead, data could be stored in variable length fields separated by a unique character (*e.g.*, "*" or "|"). Still another rule that could be modified is the prohibition against decimals, commas, or dollar signs. These characters could simply be ignored when the data is processed.

Batch Filer Utility 122 processes two types of tax data files: enrollment files and payment files. As the names suggest, enrollment files include the data needed to enroll taxpayers in the EFTPS, and payment files include the data needed to submit

tax payments for those enrollees. As those skilled in the art understand, Batch Filer Utility 122 could process any other type of tax data file accepted by TPS 130.

Taxpayer Enrollment Files

The following table illustrates a typical taxpayer enrollment record. Those skilled in the art will understand that the details of the format and content are dictated by what TPS 130 expects to receive. For example, one embodiment of Batch Filer Utility 122 only accepts two types of enrollment transactions, add and terminate. Other embodiments of Batch Filer Utility 122 could accept and send other enrollment transactions, such as change enrollment information, if such transactions are accepted by TPS 130.

Table B: Enrollment Record Example

Data Example	Field Name	Position	Length
890111111	Batch Filer ID	1-9	9
1111	Master Inquiry PIN	10-13	4
19970425	File Date	14-21	8
101	File Sequence #	22-24	3
0001	Enrollment #	25-28	4
A	Action Code	29	1
JOHN DAVIS	Taxpayer Name	30-64	35
I	Taxpayer Type	65	1
403020101	Taxpayer TIN	66-74	9
	Taxpayer PIN	75-78	4
	Secondary TIN	79-87	9
US	Country Code	88-89	2
DC	State	90-91	2
000020016	Zip Code	92-100	9
8655	Signature Equivalent	101-104	4
D	Remittance Method	105	1
B	Primary Input Method	106	1
N	Master Account Flag	107	1

Data Example	Field Name	Position	Length
011000015	Routing Transit #	108-116	9
00500500500500500	Account #	117-133	17
C	Account Type	134	1
Y	Prenote Account	135	1

The following table includes a column that describes the field edits performed by a Batch Filer Utility 122 enrollment data validation routine before sending an enrollment file to TPS 130. Details about data validation are included in the discussion of the File Menu Send item in the section entitled "File Menu."

Table C: Enrollment Record Field Edits

Field Name	Type	Length	Field Edits
Batch Filer ID	Numeric	9	Must be 9 digits
Master Inquiry PIN	Numeric	4	Must be 4 digits
File Date	Numeric	8	Must be valid date YYYYMMDD
File Sequence Number	Numeric	3	Must be unique within day
Enrollment Number	Numeric	4	Must be ascending within a file
Action Code	Char	1	Must contain valid value A = Add T = Terminate
Taxpayer Name	Char	35	Must contain at least 2 characters
Taxpayer Type	Char	1	Must contain valid values B = Business I = Individual

Field Name	Type	Length	Field Edits
Taxpayer TIN	Numeric	9	Must be 9 digits
Taxpayer PIN	Numeric	4	Blank unless action code equals "T"
Secondary TIN	Numeric	9	Must be 9 digits, if applicable
Country Code	Char	2	Must be non-blank, using ISO country codes
State	Char	2	Must be valid state if country code = US
Zip Code	Numeric	9	Must be valid zip if country code = US
Signature Equivalent	Numeric	4	Must contain "8655" (confirms "8655" has been submitted to IRS)
Remittance Record	Char	1	Must contain valid value C = ACH Credit D = ACH Debit
Primary Input Method	Char	1	Must contain valid value if remittance method equals D, else leave blank P = PC B = Batch V = Voice

Field Name	Type	Length	Field Edits
Master Account Flag	Char	1	Must contain valid value if remittance method equals D, else leave blank Y = Use Batch Flier Account N = Use Taxpayer Account
Routing Transit Number	Numeric	9	Required if Master Account flag equals "N" and remittance method equals D, else leave blank Must contain 9 digits
Account Number	Char	17	If Master Account flag equals "N" and if remittance method equals D, else leave blank
Account Type	Char	1	If Master Account flag equals "N" and if remittance method equals D, else leave blank C = Checking S = Savings

Field Name	Type	Length	Field Edits
Prenote Account	Char	1	If Master Account flag equals "N" and if remittance method equals D, else leave blank Y = Yes, prenote account N = No. Batch Filer assumes responsibility for accuracy
Total		135	

Tax Payment Files

The following table illustrates a typical tax payment record. Those skilled in the art will understand that the details of the format and content depend only on what TPS 130 expects to receive. For example, because Batch Filer Utility 122 only supports the submission of tax payments, payments must be canceled using other methods (*e.g.*, the ARU). Other embodiments of Batch Filer Utility 122 could send cancel payment transactions.

Table D: Payment Record Example

Data Example	Field Name	Position	Length
890111111	Batch Filer ID	1-9	9
1111	Master Inquiry PIN	10-13	4
19970101	File Date	14-21	8
001	File Sequence #	22-24	3
0001	Enrollment #	25-28	4
P	Action Code	29	1
222222222	Taxpayer TIN	30-38	9
3333	Taxpayer PIN	39-42	4

Data Example	Field Name	Position	Length
B	Taxpayer Type	43	1
07200	Taxpayer Type	44-48	5
199703	Tax Period	49-54	6
19970317	Settlement Date	55-62	8
000000000000100	Payment Account	63-78	15

The following table includes a column that describes the field edits performed by a Batch Filer Utility 122 payment data validation routine before sending a payment file to TPS 130. Details about data validation are included in the discussion of the File Menu Send item in the section entitled "File Menu."

Table E: Payment Record Field Edits

Field Name	Type	Length	Field Edits
Batch Filer ID	Numeric	9	Must be 9 digits
Master Inquiry PIN	Numeric	4	Must be 4 digits
File Date	Numeric	8	Must be valid date YYYYMMDD
File Sequence Number	Numeric	3	Must be unique within day
Payment Reference Number	Numeric	4	Must be ascending within file
Action Code	Char	1	Must contain valid value P = Payment
Taxpayer TIN	Numeric	9	Must be 9 digits
Taxpayer PIN	Numeric	4	Must be 4 digits
Taxpayer Type	Char	1	Must be valid value B = Business I = Individual

Field Name	Type	Length	Field Edits
Tax Type Code	Numeric	5	Must be valid tax type code
Tax Period	Numeric	6	Must be valid date YYYYMM
Settlement Date	Numeric	8	Must be valid Settlement Date YYYYMMDD
Payment Amount	Numeric	15	Must be greater than 0 and less than 100,000,000
Subcategory code 1	Numeric	3	Not a required field, if present must be valid IRS code
Subcategory amount 1	Numeric	15	Not a required field, if present sum of subcategory amount must equal total payment amount
Subcategory code 2			
Subcategory amount 2			
Subcategory code 3			
Subcategory amount 3			
Subcategory code 4			
Subcategory amount 4			
Subcategory code 5	Numeric	3	Not a required field, if present must be valid IRS code

Field Name	Type	Length	Field Edits
Subcategory amount 5	Numeric	15	Not a required field, if present sum of subcategory amount must be equal total payment amount

Note: Subcategory codes and amounts are optional. If not using, put in spaces.

Batch Filer Utility Implementation

Batch Filer Utility 122, written in C++ and Visual Basic, is installed on a standard PC configured as follows:

Hardware: Intel compatible personal computer with a minimum 486 processor.

Memory: Minimum of 8 MB RAM (16 MB of RAM recommended).

Hard Disk Drive: Minimum of 1.2 gigabyte of available disk space.

Operating System: Microsoft Windows 3.1 or higher, or Microsoft NT 3.51 or higher.

Modem: Hayes-compatible modem capable of running at 14.4 or higher.

Those skilled in the art understand that alternative embodiments of Batch Filer Utility 122 can be developed with other programming tools (*e.g.*, C or Windows 3.11 Resource Kit), can run under other operating systems (*e.g.* Unix or Macintosh), and can be installed on any appropriate hardware.

Batch Filer Utility 122 supports automated software installation. For example, a user installing the software in a Windows 3.1 environment simply has to insert the correct program disk in the drive, select File and Run from the Program Manager, and follow the directions displayed on the screen. The installation process loads files from the program disks on to the hard drive of client PC 120 and modifies any computer system files as necessary. For example, Batch Filer Utility 122 modifies the *autoexec.bat* file to include a share command line (*e.g., c:\dos\share.exe /F:100 /L:100*).

Operating the Batch Filer Utility

The following discussion describes an embodiment of Batch Filer Utility 122 implemented with design and functional features that are typical of Microsoft Windows applications. These features include: accepting user input from a mouse or keyboard; invoking Batch Filer Utility 122 by double-clicking on an icon representing the application; obtaining user input from dialog box fields; closing windows when the user clicks on an OK or Cancel button; providing Control Menu items that allow the user to resize and position windows (*e.g.*, restore, move, size, minimize, close); and providing keyboard shortcut keys for menu items (*e.g.*, Ctrl + O for the Options item on the Tools Menu). These and other standard Microsoft Windows features are well known to those skilled in the art and need not be described in detail here. See, for example, any Microsoft Windows User's Guide. The following detailed description of Batch Filer Utility 122, therefore, discusses only those features that are relevant to understanding how Batch Filer Utility 122 operates. For example, it is understood that windows can include OK and Cancel buttons so that the user can indicate whether Batch Filer Utility 122 should accept or ignore data just entered into a dialog box.

FIG. 2 shows a flow diagram of the major functions of one embodiment of Batch Filer Utility 122. FIGS. 3-6 show flow diagrams of embodiments of procedures implementing those functions. The flow diagrams do not include endpoints at every branch because, as those skilled in the art understand, Microsoft Windows applications are generally event driven. In other words, a user executes procedures in any reasonable order, and after a procedure terminates it is up to the user to initiate the next action.

Main Menu

When a user starts Batch Filer Utility 122 by selecting the corresponding application icon, a welcome message appears briefly on the screen and then the Main Menu is displayed in an application window. The items on the Main Menu bar are the major Batch Filer Utility 122 functions: File, Tools, and Help. Each Main Menu item has its own associated drop-down menu of items, and those items may, in turn, have associated drop-down menus. The following notation is used herein to refer to successive levels on a menu: MainMenu|Menu2|Menu3, and so on. A user traverses a

menu structure such as this by selecting menu items until reaching an item that invokes an action (*e.g.*, displaying a dialog box or starting a procedure). Of course, as those skilled in the art know, no specific menu items or arrangement is required to implement Batch Filer Utility 122. Referring to FIG. 2, execution starts at step 205 when the user selects one of the Main Menu items. Depending on whether the user selects File, Tools, or Help, execution continues at either step 210, 225, or 255, respectively.

File Menu

If the user selects File from the Main Menu, execution continues at step 210. The File Menu comprises a Send item for sending tax data files to TPS 130 for processing, a Receive item for receiving response files from TPS 130, and an Exit item for exiting Batch Filer Utility 122. Depending on whether the user selects Send, Receive, or Exit, execution continues at either step 215 or step 220, or execution terminates, respectively.

Batch Filer Utility 122 works with many files, but it does not require any particular file names or directory structure. Thus, the user is free to store files in multiple directories. For example, if the Batch Filer Utility 122 software is stored directory *c:\batchfil*, taxpayer enrollment files might be stored in directory *c:\batchfil\enroll*, tax payment files in directory *c:\batchfil\taxpay*, and response files in directory *c:\batchfil\response*. However, to avoid conflicts with others using the communications functionality of Batch Filer Utility 122, only directories on local drives should be used (*i.e.*, network drives should not be used). Depending on the communications software and configuration of an embodiment of Batch Filer Utility 122, this limitation may not apply.

When Batch Filer Utility 122 needs the name and/or directory of a file (*e.g.*, in order to read or write a file), a dialog box is used to obtain the information. This allows the user to supply the information either by typing it in from the keyboard or by selecting a Browse button to invoke standard Windows file finding techniques. As those skilled in the art realize, many alternative techniques can be used by Batch Filer Utility 122 to obtain file names and directories.

Send. The Send item on the File Menu is used to import and transmit enrollment and payment data files to TPS 130 for processing. If the user selects Send from the File Menu at step 210, execution continues at step 215 where Batch Filer Utility 122 executes a file send procedure, such as Send procedure 300 illustrated in FIG. 3. Referring to FIG. 3, at step 305, Batch Filer Utility 122 obtains the type of the file (*e.g.*, enrollment or payment) that the user wants to send to TPS 130 by displaying a drop-down menu with two items: Enrollment and Payment.

Next, at step 310, Batch Filer Utility 122 displays a dialog box that includes a "Send From" field into which the user enters the directory path and file name of the tax data file to send to TPS 130. The "Send From" field initially reflects the default send directory and file name that the user enters from the Tools|Options Send tab (described in "Options" in the section entitled "Tools Menu"). The user can change this default by typing a new directory path and/or file name into the field or by using the Browse button next to the field.

If after entering the information the user selects Send, at step 315, Batch Filer Utility 122 runs a data validation routine corresponding to the file type. In addition to verifying that a file complies with the criteria defined in "Table A: Basic Tax Data File Rules," the data validation routine performs the edit checks specific to the file type. The "Field Edits" columns of "Table C: Enrollment Record Field Edits" and "Table E: Payment Record Field Edits" illustrate criteria used for validating the data in an enrollment record and a payment record, respectively. Embodiments of Batch Filer Utility 122 data validation routines perform other checks including, but not limited to, verifying the number of records in the file or the total of payment amounts. Examples of errors that data validation routines might identify, and the corresponding corrective actions, are provided in "Table L: PC Error Corrective Actions" of "Appendix A: Error Code Tables."

The data validation routine records its results as text entries in an error file named *bfimperr.txt*, writing only as many entries as the user specified (with Options procedure 500, described below) for the maximum number of errors to display. As those skilled in the art will understand, Batch Filer Utility 122 can stop validating the data when it reaches this limit, or continue to validate all the data records, regardless

of how many errors it writes to the error file. The user can process the error file with any appropriate tool (*e.g.*, a word processor or spreadsheet program). Those skilled in the art will understand that the name of the error file is arbitrary. For example, another name could be used (*e.g.*, *errorchk.txt*), varying file names could be used (*e.g.*, the data validation routine could generate a new name every time it runs), or the file name could be user defined (*e.g.*, the user could enter the name of the error file in a dialog box).

The following illustrates an example of the contents of an error file for a tax data file without any errors.

```
File name: c:\batchfil\send\enrlldat.TXT   FileDate:
Jul 19, 1997   File Sequence: 101

RECORD  ERROR

-------------------------------------------------
No Errors Encountered.
```

The following illustrates an example of the contents of an error file for a tax data file containing errors.

```
File name: C:\BATCHFIL\SEND\ENRLLERR.TXT   FileDate:
Jul 19, 1997   File Sequence: 101

RECORD  ERROR

-------------------------------------------------

4  Invalid Taxpayer Name -
8  Invalid Import Record Size Got:  134  Expected:  135
```

Batch Filer Utility 122 stores the text of the error messages in a Microsoft Access database table. Embodiments of Batch Filer Utility 122 can process and/or

report errors using error codes. Examples of error codes and messages are provided in "Table M: Error File Messages" of "Appendix A: Error Code Tables." Those skilled in the art understand that other systems (*e.g.*, other relational database systems or flat files) could be used to store this information.

After generating the error file, execution continues at step 320, where Batch Filer Utility 122 determines whether the tax data file contained any errors. If there are errors, at step 325, Batch Filer Utility 122 displays an import error message such as "There were errors during import. Review the file C:\BATCHIL\BFIMPERR.TXT." Then, at step 330, Batch Filer Utility 122 disables the option to transmit the tax data file to TPS 130 by, for example, disabling a Send button so that the only option the user has is to select a Cancel button and return to the Main Menu. The user must exit from Batch Filer Utility 122 and correct the errors before Batch Filer Utility 122 will send the tax data file to TPS 130.

If at step 320 Batch Filer Utility 122 determines that the tax data file did not contain any errors, execution continues at step 335 where the user can select Send to transmit the tax data file to TPS 130. While the file is being sent to TPS 130, Batch Filer Utility 122 reports the progress of the transmission by displaying messages in windows. For example, one window tracks the connection to TPS 130 (*e.g.*, dialing host or initializing modem) and another window tracks how much of the tax data file has been sent (*e.g.*, by displaying a bar showing transmission percent complete). If the transmission completes successfully, the last message Batch Filer Utility 122 displays is one indicating that the transmission is complete.

How execution proceeds at this point depends on how TPS 130 processes the tax data file and generates the corresponding response file (described in "Receive" below). After sending a payment file, at step 340, Batch Filer Utility 122 can stay connected while TPS 130 posts the payments and receive the response file during the same communications session. After receiving the payment response file, or after transmitting an enrollment file, Batch Filer Utility 122 disconnects from TPS 130 at step 345. Those skilled in the art will appreciate that if TPS 130 makes an enrollment response file available during the communications session in which the enrollment file

is transmitted, Batch Filer Utility 122 could also receive that response file during the same session.

Receive. TPS 130 creates a response file for every tax data file the user sends for processing. The name of a response file could be based on the date and sequence number of the corresponding tax data file. For example, the response file for the fourth tax data file sent on July 21, 1997 could be *19970721.004*. Response files include one response record for each corresponding tax data file record. The content of a response file record is, therefore, determined by the type of tax data file. The Receive item on the File Menu is used to receive response files from TPS 130. After receiving a response file, the user can process it outside of Batch Filer Utility 122 (*i.e.*, the response file is exported) with any appropriate tool (*e.g.*, a word processor or a spreadsheet program).

The following tables illustrate typical response file records and field edits performed by TPS 130. In the following examples, response records include an error code field (also referred to as a status code field), which indicates whether or not the transaction (*e.g.*, enrollment or payment) was successful. In these examples, the error code "0000" indicates a successful transaction. Additional examples of error codes and corresponding descriptions are provided in "Table J: Enrollment Error Codes" and "Table K: Payment Error Codes" of "Appendix A: Error Code Tables."

Table F: Enrollment Response Record Example

Data Example	Field Name	Position	Length
890555555	Batch Filer ID	1-9	9
199703303	Original File Date	10-17	8
0001	File Sequence Number	18-21	4
001	Enrollment Number	22-24	3
7068	Taxpayer PIN	25-28	4
0000	Error Code	29-32	4

Table G: Enrollment Response Record Field Edits

Field Name	Type	Length	Field Edits
Batch Filer ID	Numeric	9	Must be 9 digits

Field Name	Type	Length	Field Edits
File Date of Original File	Numeric	8	Must be valid date YYYYMMDD
File Sequence Number in Original File	Numeric	3	Must be unique within day
Enrollment Number in Original File	Numeric	4	Must be ascending within a file
Taxpayer PIN	Numeric	4	Assigned by the TFA
Error Code	Numeric	4	Assigned by TFA

Table H: Payment Response Record Example

Data Example	Field Name	Position	Length
890111111	Batch Filer ID	1-9	9
19970415	Original File Date	10-17	8
026	File Sequence Number	18-20	3
0002	Enrollment Number	21-24	4
1234567890987765	EFT Number	25-39	15
0000	Error Code	40-43	4
19970418	Approved Settlement Date	44-51	8

Table I: Payment Response Record Field Edits

Field Name	Type	Length	Field Edits
Batch Filer ID	Numeric	9	Must be 9 digits
File Date of Original File	Numeric	8	Must be valid date YYYYMMDD
File Sequence Number of Original File	Numeric	3	Must be unique within day
Payment Reference Number of Original File	Numeric	4	Must be ascending within file

Field Name	Type	Length	Field Edits
EFT Number	Numeric	15	Assigned by TFA
Error Code	Numeric	4	Assigned by TFA
Approved Settlement Date	Numeric	8	Valid settlement date YYYYMMDD

Note: For status codes 5122 and 5125, an EFT number will also be given as the payment has been processed. Otherwise, user receives an EFT number or an error code.

As describe above in "Send," the user can stay connected when sending a payment file and receive the response file in the same communications session. However, if the communications connection is interrupted while TPS 130 is posting payments (*e.g.*, the line drops or the user cancels the session), the user can use File|Receive|Payment to retrieve the response file. The user uses File|Receive|Enrollment to retrieve the enrollment response files.

If the user selects Receive from the File Menu at step 210, execution continues at step 220 where Batch Filer Utility 122 executes a file receive procedure, such as Receive procedure 400 illustrated in FIG. 4. Referring to FIG. 4, at step 405, Batch Filer Utility 122 obtains the type of the response file (*e.g.*, enrollment or payment) that the user wants to receive from TPS 130 by displaying a drop-down menu with two items: Enrollment and Payment. Next, at step 410, Batch Filer Utility 122 displays a dialog box that includes two fields into which the user enters the Batch Filer ID and the Master Inquiry PIN that were assigned when the user registered as a batch filer with the assigned Treasury Financial Agent (TFA).

Execution continues at step 415, where Batch Filer Utility 122 gets the path of the directory into which it will store the response file(s) received from TPS 130. To obtain the directory path, Batch Filer Utility 122 displays a Responses dialog box that includes a "Store Response At" field, which initially reflects the default receive directory that the user enters from the Tools|Options Receive tab (described in "Options" in the section entitled "Tools Menu"). The user can change this receive

directory path by typing a new path into the field or by using the Browse button next to the field.

At step 415 Batch Filer Utility 122 also displays, on the left side of the Responses dialog box, a first list of dates and file sequence numbers corresponding to response files. To create this list, Batch Filer Utility 122 uses the information stored in the database described in "Database Utilities" in the section entitled "Tools Menu." At step 420, if the user chooses to update this first list, Batch Filer Utility 122 connects to TPS 130, gets a current list of the dates and sequence numbers of response files available on TPS 130, disconnects, and updates the first list.

At step 425, the user identifies entries on the first list to indicate which response files Batch Filer Utility 122 should retrieve from TPS 130. To select individual entries, the user clicks on an entry in the first list and then on a button marked ">." The selected entry appears in a second list of dates and file sequence numbers on the right side of the Responses dialog box. Alternatively, to select all of the entries on the first list, the user clicks on a button marked ">>." Similarly, the user can deselect entries from the second list with buttons marked "<" and "<<." Then, if the user selects OK, at step 430, Batch Filer Utility 122 connects to TPS 130 and retrieves the response files corresponding to the entries selected by the user. Lastly, at step 435, Batch Filer Utility 122 disconnects from TPS 130. Those skilled in the art are aware that myriad techniques for identifying response files to retrieve can be used by other embodiments of Batch Filer Utility 122.

Exit. If the user selects the Exit from the File Menu at step 210, execution terminates and the Batch Filer Utility 122 application window closes. Those skilled in the art know that alternative methods for exiting the application include selecting the Close item on the Main Menu or double-clicking on the Control Menu box or icon in the upper left corner of the Batch Filer Utility 122 application window.

Tools Menu

If the user selects Tools from the Main Menu, execution continues at step 225 on FIG. 2. The Tools Menu comprises an Options item for entering basic system information (*e.g.*, default file names and communications data), a Test item for testing file-related functions (*e.g.*, file import and send), and a Database Utilities item for

maintaining a database containing a list of files processed by Batch Filer Utility 122 (*e.g.*, files sent to TPS 130 and response files received from TPS 130). Depending on whether the user selects Options, Test, or Database Utilities, execution continues at either step 230, 235, or 240, respectively.

Options. If the user selects Options at step 225, execution continues at step 230 where Batch Filer Utility 122 executes an options procedure, such as Options procedure 500 illustrated in FIG. 5. Referring to FIG. 5, at step 505, Batch Filer Utility 122 determines which category of options the user wants to setup by displaying a dialog box that is divided into three tabs, one for each category: Send, Receive, and Communications. Depending on which tab the user selects, execution continues at either step 510, 530, or 535 for Send, Receive, or Communications, respectively. Those skilled in the art are aware that other embodiments of Batch Filer Utility 122 could use techniques, such as additional drop down menus, to organize the options categories.

The Options Send tab displays a dialog box that is used to gather information related to sending files to TPS 130. If the user selects the Send tab at step 505, Batch Filer Utility 122 displays a dialog box with several fields. Execution continues at step 510 where Batch Filer Utility 122 gets the default directory path. The user can either type a file name in a "Default Directory" data field or use a Browse button to locate a directory. At steps 515 and 520, respectively, Batch Filer Utility 122 gets the default tax data file extension (*e.g.*, *txt*) and default file name (*e.g.*, *import*), which the user enters into appropriately labeled data fields. Batch Filer Utility 122 uses these three entries (*i.e.*, directory path, file extension, and file name) to construct the default directory and file name that is displayed in a "Send From" field on the File|Send|Enrollment and File|Send|Payment dialog boxes.

At step 525, Batch Filer Utility 122 gets the maximum number of errors to write to the error file that is generated by the data validation routines discussed in the description of File|Send. The user types a number into a data field labeled "Maximum # of Errors to Display on Import." If a user wants Batch Filer Utility 122 to report all errors, a very large number should be entered. Other embodiments of Batch Filer

Utility 122 can interpret specific values (*e.g.*, 0 or -1) to mean that the user wishes to see all errors.

The Options Receive tab displays a dialog box used to gather information related to receiving files from TPS 130. If the user selects the Receive tab at step 505, execution continues at step 530 where Batch Filer Utility 122 gets the default directory path for receiving response files. The user can either type a file name in a "Default Directory" data field or use a Browse button to locate a directory. Batch Filer Utility 122 uses the entry as the default directory that is displayed in a "Store Response At" field on the File|Receive|Enrollment and File|Receive|Payment Responses dialog boxes.

The Options Communications tab displays a dialog box used to gather communications data needed prior to any communications with TPS 130. If the user selects the Communications tab at step 505, execution continues at step 535 where Batch Filer Utility 122 gets a communications time out, specified in seconds, from a data field. This time out controls how long Batch Filer Utility 122 will attempt to connect with TPS 130 before terminating a communications session.

The Options Communications tab dialog box also includes fields for displaying the current host (*i.e.*, TPS 130) parameter values (*e.g.*, IP address, port number, and site ID). The dialog box also includes a Configure button for entering new data values for the host parameters, as well as for entering communications parameters (*e.g.*, communications port and baud rate), modem type, and dial preferences (*e.g.*, logon profile, host telephone number, user name, and password). In one embodiment of Batch Filer Utility 122, the logon profile is simply a synonym for the host telephone number, and the password field, which controls access to TPS 130, is always blank. One embodiment of Batch Filer Utility 122 uses Spry dialer communications software to communicate with TPS 130 and terminates communications by program control, rather than waiting for the Spry software to time out. As will be apparent to those skilled in the art, Batch Filer Utility 122 can use any appropriate communications software.

At step 540, if the user selects the Configure button, Batch Filer Utility 122 displays a Modem Setup dialog box including data fields into which the user enters

data values. At step 545, if the user accepts the data values by selecting a Save button, Batch Filer Utility 122 gets the communications configuration data values. To ensure that it gets accurate and complete communications data, Batch Filer Utility 122 can take additional steps. First, some data values, such as the IP address and the port number, are pre-configured to eliminate user input errors. Second, if any required field (*e.g.*, the primary telephone number) is blank, the user cannot save the configuration. Third, before accepting new data values, an extra dialog box is displayed to verify that the user wants to overwrite a previous setup.

Test. The Test item on the Tools Menu is used to verify that the file import and send functions operate correctly by sending test tax data files to TPS 130. If the user selects Test from the Tools Menu at step 225, execution continues at step 235 where Batch Filer Utility 122 executes a test procedure, such as Test procedure 600 illustrated in FIG. 6, on a test tax data file. With only two exceptions, steps 605-645 are identical to steps 305-345 of Send procedure 300, discussed in detail in the Send portion of the section entitled "File Menu." Thus, only the two exceptions are discussed in detail here. First, the test data validation procedures executed at step 615 require that the Batch Filer ID and PIN must be all nines (*i.e.*, 999999999 and 9999). Second, the records in the test response file that Batch Filer Utility 122 receives at step 640 are not related to the records in the test tax data file that was sent at step 635. The test response file for a test enrollment file contains a pre-defined set of records, some of which indicate completed enrollments and some of which indicate errors. The test response file for a test payment file contains the same number of records as in the test payment file, but the contents of the records is randomly generated. If Batch Filer Utility 122 disconnects from TPS 130 before receiving a test response file, the user must send a test file again in order to receive a response file.

Database Utilities. Batch Filer Utility 122 uses a Microsoft Access database table to keep track of tax data files sent to TPS 130 and response files sent from TPS 130. Examples of the columns and indexes used in this table are provided in "Table N: Response Files Table Columns" and "Table O: Response Files Table Indexes," respectively, of "Appendix B: Response Files Table Design."

Batch Filer Utility 122 stores the database in a file called *bfiler.mdb* and maintains the database with the Access compress and repair utilities. As a safety precaution, Batch Filer Utility 122 makes a backup copy of the database (*e.g.*, in a file named *bfold.mdb*) before executing either utility. Those skilled in the art understand that any appropriately named files could be used to store the database and backup. Those skilled in the art also understand that other systems (*e.g.*, other relational database systems or flat files) and utilities (*e.g.*, custom coded database maintenance routines) could be used to keep track of the files.

If the user selects Database Utilities at step 225, execution continues at step 240 where Batch Filer Utility 122 determines which utility the user wants to execute by displaying a drop-down menu with two items: Compress and Repair. If the user selects Compress at step 240, execution continues at step 245 where Batch Filer Utility 122 executes the compress utility. The compress utility is used to control the size of the database as it grows over a period of time due to records being added and deleted as files expire on TPS 130 (*e.g.*, files expire and are deleted from TPS 130 after 30 days). However, the physical size of the database does not shrink as records are deleted. The compress utility is used to reduce the physical size of the database by recovering any deleted record space in the database. Although Batch Filer Utility 122 does not require that the compress utility be used with any particular regularity, once a month is recommended.

If the user selects Repair at step 240, execution continues at step 250 where Batch Filer Utility 122 executes the repair utility. The repair utility is used to attempt an automatic repair of a corrupted database. If a database access error occurs while Batch Filer Utility 122 is executing (*e.g.*, cannot open *bfiler.mdb*), the user should try fixing the problem with the repair utility.

Help Menu

If the user selects Help from the Main Menu, execution continues at step 255 on FIG. 2. Online help is a standard Windows function that can be implemented in a variety of ways. A typical Help Menu includes items such as "Contents," "Search for Help On," and "Index." Those skilled in the art will appreciate that an any

customized help facility could be invoked from a Help Menu item, or alternatively that help could be provided by telephone support or a printed user's manual.

Other Embodiments

The invention is not limited to the embodiments described above. In another embodiment, the invention runs in a Windows NT 3.51 environment. In this embodiment, the following text is added to the end of the *<systemroot>\system32\ras\switch.inf* file (where *systemroot* is the directory in which the system software is installed (*e.g., c:\win351*).

; This section provides log on script for connection to Compuserve.
; (an after dialing script)

[EFTPSBF]
COMMAND=

COMMAND =<cr>

OK =<match>":" ; Waits for CompuServe's Host Prompt.
LOOP=<ignore>
COMMAND=IPS000<cr> ; Replace [YOUR...] with Desired Host Name.

OK =<match>"~" ; Waits for start of PPP Neg.
LOOP=<ignore>

Other embodiments of the invention could use any appropriate user interface. Such interfaces include, but are by no means limited to, other graphical user interfaces (GUIs), such as the X11 windows environment; interactive display of text-based menu lists of options; and command line interfaces that obtain system input from parameters entered on the command line.

It will be appreciated by those skilled in the art that further embodiments of the invention may be made without departing from the spirit and scope of the

invention as described herein. Such embodiments are intended to be within the scope of the appended claims.

Appendix A: Error Code Tables

Table J: Enrollment Error Codes

Error Codes	Description	Comments
0000	Successful enrollment	Successful enrollment
4001	Primary SSN and secondary SSN reversed	IRS Entity Validation Warning only - enrollment is successful
4002	Primary SSN and secondary SSN reversed and name mismatched	IRS Entity Validation Warning only - enrollment successful
4003	Primary SSN and secondary SSN reversed and Name mismatched, but determined to be correct taxpayers	IRS Entity Validation Rejection - correct the problem and submit a new enrollment
4004	Name mismatched, but determined to be correct taxpayers	IRS Entity Validation Warning only - enrollment is successful
4005	TIN mismatched	IRS Entity Validation Rejection - correct the problem and submit a new enrollment
4006	Name mismatched	IRS Entity Validation Rejection - correct the problem and submit a new enrollment
4007	Secondary SSN mismatched	IRS Entity Validation Rejection - correct the problem and submit a new enrollment

Error Codes	Description	Comments
4008	Secondary SSN mismatched and name mismatched. (Correct taxpayer)	IRS Entity Validation Rejection - correct the problem and submit a new enrollment
4009	Secondary SSN mismatched and name mismatched	IRS Entity Validation Rejection - correct the problem and submit a new enrollment
4011	Taxpayer name missing	Correct the problem and submit a new enrollment
4012	Taxpayer type is blank or invalid	Correct the problem and submit a new enrollment
4013	Taxpayer TIN is blank or invalid	Correct the problem and submit a new enrollment
4014	Taxpayer zip code is blank or invalid	Correct the problem and submit a new enrollment
4015	"8655" flag is missing or invalid	Correct the problem and submit a new enrollment
4016	Batch filer ID number is missing or invalid	Correct the problem and submit a new enrollment
4017	Batch Filer ID number is not active	Correct the problem and submit a new enrollment
4018	DFI account information is missing or invalid	Correct the problem and submit a new enrollment
4019	Prenote Reject	Correct the problem and submit a new enrollment

Error Codes	Description	Comments
4020	Terminate Invalid Warehoused Payment	An enrollment cannot be terminated while a related payment exists in the EFTPS warehouse. Cancel the payment or contact customer service for assistance
4021	Invalid Master Inquiry PIN	Correct the problem and submit a new enrollment
4022	Invalid File Date	Correct the problem and submit a new enrollment
4023	Invalid File Sequence Number	Correct the problem and submit a new enrollment
4024	Invalid Enrollment Number	Correct the problem and submit a new enrollment
4025	Invalid Action Code	Correct the problem and submit a new enrollment
4026	Invalid Taxpayer PIN	Correct the problem and submit a new enrollment
4027	Invalid Secondary TIN	Correct the problem and submit a new enrollment
4028	Invalid Country Code	Correct the problem and submit a new enrollment
4029	Invalid State	Correct the problem and submit a new enrollment
4030	Invalid Remittance Method	Correct the problem and submit a new enrollment
4031	Invalid Primary Payment Input Method	Correct the problem and submit a new enrollment

Error Codes	Description	Comments
4032	Invalid Master Account Flag	Correct the problem and submit a new enrollment
4033	Invalid Routing and Transit Number	Correct the problem and submit a new enrollment
4034	Invalid Account Type	Correct the problem and submit a new enrollment
4035	Prenote Account Flag Invalid	Correct the problem and submit a new enrollment
4036	Duplicate File	A duplicate file is suspected. Verify that the file was not already sent for the days business. Contact Customer Service if problem persists.
4037	Response File Not Found	Response files are deleted after 30 days. If file is less than 30 days old and problem persists, contact Customer Service.
4038	Error Processing File - Call Customer Service	Contact Customer Service
9999	Enrollment Pending	Enrollment is pending IRS validation and/or prenote processes

Table K: Payment Error Codes

Error Codes	Description	Comments
0000	Successful payment	Successful payment
5103	Total dollar amount exceeds maximum	Correct the problem and submit a new payment
5104	Tax type not valid	Correct the problem and submit a new payment
5105	One or more subcategory amounts are negative or invalid	Correct the problem and submit a new payment
5106	Tax type is not valid for the Taxpayer type	Correct the problem and submit a new payment
5108	Settlement Date is not Valid (weekend, holiday, etc.)	Correct the problem and submit a new payment
5110	Invalid Batch Filer	Correct the problem and submit a new payment
5111	Batch Filer is inactive	Call Customer Service
5113	Taxpayer is not active	Payments cannot be made for an inactive taxpayer
5114	Taxpayer is not enrolled	Payments cannot be made for a taxpayer not enrolled in EFTPS
5116	Settlement Date not greater than today or exceeds maximum warehouse period (business - 30 days individual - 105 days)	Correct the problem and submit a new payment
5118	Fund Transfer Amount not greater than 0 or invalid	Correct the problem and submit a new payment

Error Codes	Description	Comments
5122	Warning: Duplicate Payment Accepted	EFTPS Warning Message. A duplicate payment is suspected but will be processed.
5123	Invalid Taxpayer PIN	Correct the problem and submit a new payment
5124	Invalid TIN	Correct the problem and submit a new payment
5125	Payment transaction is being processed after 8 pm ET and the Settlement Date is the next calendar day	
5126	Sum of the Subcategory Amounts not equal to Payment amount	Correct the problem and submit a new payment
5127	Taxpayer not enrolled for ACH Debit	Correct the problem and submit a new payment
5128	Master Account not active	Correct the problem and submit a new payment
5129	Invalid Master Inquiry PIN	Correct the problem and submit a new payment
5130	Invalid File Date (< or = to today's date within 5 business days)	Correct the problem and submit a new payment
5131	Invalid Filer Sequence Number	Correct the problem and submit a new payment
5132	Invalid Payment Reference Number	Correct the problem and submit a new payment

Error Codes	Description	Comments
5133	Invalid Action Code	Correct the problem and submit a new payment
5134	Invalid Tax Period	Correct the problem and submit a new payment
5135	Invalid Subcategory Code	Correct the problem and submit a new payment
5136	Duplicate File	A duplicate file is suspected. Verify that the file was not already sent for the days business.
5137	Response File Not Found	Response files are deleted after 30 days. If file is less than 30 days old and problem persists call customer service.
5138	Error Processing File - Call Customer Service	Contact Customer Service
5140	Subcategory Code Not Valid for Tax Type Code	Correct the problem and submit a new payment
5141	Taxpayer Using Master Account Not Enrolled with Batch Filer	Correct the problem and submit a new payment
9999	Payment Pending	Inquire at a later time

Table L: PC Error Corrective Actions

Error Type: E = Enrollment, P = Payment, and B = Both

Error Type	Enr	Pmt	Error Description	Correction
B			Failed to read Import File	Ensure that the directory in Tools|Options|Send is valid and correct, and that the filename is correct, and that the file contains the correct data (is not a null file).
B	4016	5110	Invalid Batch Filer ID	Change the BF ID to a valid one.
B	4022	5108	Invalid Date - Must be YYYYMMDD	Ensure the format is correct - YYYYMMDD and equal to a date greater than today's date.
B			The Batch Filer ID is different within the file	Change any incorrect or invalid BF IDs in this field. All BF IDs need to the same number within a file.
B			The Master PIN is different within the file	Change any incorrect or invalid Master PINs in this field.
B			The File Date is different within the file	Change any incorrect or invalid File Dates in this field.

Error Type	Enr	Pmt	Error Description	Correction
B			The File Sequence Number is different within the file	All File Sequence numbers need to be the same, and must be unique within the day for that file.
E	4024		Invalid Enrollment Number	Must be ascending within a file.
P		5132	Invalid Payment Reference Number	Must be ascending within a file.
B	4021	5123	Invalid PIN	Ensure PIN number is correct. For Enrollments only, this field is blank unless Action Code = "T" (Terminate).
B	4023	5131	Invalid Filer Sequence Number	All File Sequence numbers need to be the same, and must be unique within the day for that file.
E	4011		Invalid Taxpayer Name	Ensure taxpayer name is correct and valid, this field must contain at least 2 characters.
B	4013	5124	Invalid TIN	Ensure taxpayer TIN is a valid one; must be 9 digits.

Error Type	Enr	Pmt	Error Description	Correction
E	4026		Invalid Taxpayer PIN - Must be blank	This field must be blank unless Action Code = "T" (Terminate).
E	4027		Invalid Secondary TIN - Must be blank	This filed must be blank if Taxpayer Type = "B" (Business).
E	4014		Invalid Zip Code - Must be blank for non US country code	This field must be blank if Country Code does not equal "US."
E	4014		Invalid Zip Code	Ensure Zip code is correct and valid for US.
E	4015		Invalid Signature Equivalent - Cannot be blank	Must contain "8655," which confirms a Form 8655 is submitted to the IRS.
E	4030		Invalid Remittance Method - Cannot be blank	Must contain valid value: "C" for ACH Credit, "D" for ACH debit.

Error Type	Enr	Pmt	Error Description	Correction
E	4033		Invalid Routing Number	Ensure that the Routing and Transit Number (RTN) is correct and valid. If the Master Account Flag = "N," and if the Remittance Method = D, a 9-digit number must appear in this field, or else it is left blank.
E	4033		Invalid Routing Number - Must be blank	If the Remittance method = "C," it is left blank.
E	4018		Invalid Account Number - Must be blank	If the Remittance method = "C," it is left blank.
E	4018		Invalid Account Number - Cannot be blank	If the Remittance method = "D," and the Master Account flag - "N," a valid account number, up to 17 characters, must appear.

Error Type	Enr	Pmt	Error Description	Correction
E	4034		Invalid Account Type - Cannot be blank	This field must contain a valid value, "C" (for Checking) or "S" (for Savings), if the Master Account flag - "N" and the remittance method = "D," otherwise it is left blank.
E	4034		Invalid Account Type - Must be blank	If the Master Account flat = "Y" or the remittance method = "C," it is left blank.
E	4035 4032		Invalid Prenote Account Flag - Must be blank	If the Master Account flat = "Y" or the remittance method = "C," it is left blank.
E	4035 4032		Invalid Prenote Account Flag - Must be Y or N	This field must contain a valid value, "Y" (Prenote Account) or "N" (Batch Filer assumes responsibility for accuracy). No prenote if the Master Account flag = "N" and the remittance method = "D," otherwise it is left blank.
P			Invalid Taxpayer Type - Must be "B" or "I"	This field must contain a valid value, "B" (Business) or "I" (Individual).

Error Type	Enr	Pmt	Error Description	Correction
P		5104	Invalid Tax Type Code	This field must contain a valid numeric value (refer to PIB).
P		5134	Invalid Tax Period - Must be YYYYMM	This field must contain a valid date in the YYYYMM format.
P		5108	Invalid Settlement Date - Must be greater than today	This field must contain a valid date in the YYYYMM format and must be greater than today's date.
P		5135	Invalid Subcategory code	This field must contain a valid IRS code, but is not a required field.
P		5105	Invalid Amount - Numbers only, leading zero filled	This field must contain a numeric value, with leading zeroes filled to complete the field, i.e., 000000000000100 would represent an amount of $100, must be greater than 0 and less than 100,000,000.
		5118		
P		5105	Invalid Amount - Cannot be zero	This field must contain a numeric value greater than 0 and less than 100,000,000.

Error Type	Enr	Pmt	Error Description	Correction
P		5126	Subcategory Amounts do not add up to Payment Amount	Subcategory amounts (up to 5) must add up to the amount stated in the Payment Amount Field.
P			Previous subcategory code has no data, subsequent codes are not allowed	If any subcategory code field does not contain a valid IRS code, no subsequent code fields should contain any data, unless the invalid or empty subcategory code field should contain a valid IRS code.
P		5133	Invalid Action Code - Must be "P"	The Action Code field for Payments must contain a valid value of "P."
E	4028		Invalid Country Code - Cannot be blank	Must be non-blank using valid ISO country codes.
B			Invalid Import Record Size	The length of the Enrollment record must not exceed 135 characters, and the length of the payment record must not exceed 167 characters maximum (if 5 subcategory codes and amounts are used).

Error Type	Enr	Pmt	Error Description	Correction
P			Invalid Amount - Exceeds maximum allowed	Break into two payments.

Note: The following Host error codes have no PC equivalent.

Enrollment: 0000, 4001-4009, 4012, 4019, 4020, 4025, 4029, 4031, 4032, 4036, 4037, 4038, 9999.

Payment: 5103, 5106, 5111, 5113, 5114, 5122, 5125, 5127, 5128, 5136, 5137, 5138, 5139, 9999.

Table M: Error File Messages

Error Code	Error Description
10000000	Failed to read Import File:
10000001	Invalid Batch Filer ID
10000002	Invalid Date - Must be YYYYMMDD
10000003	The Batch Filer ID is different within the file
10000004	The Master PIN is different within the file
10000005	The File Date is different within the file
10000006	The File Sequence Number is different within the file
10000007	Invalid Enrollment Number
10000008	Invalid Payment Reference Number
10000009	Invalid PIN
10000010	Invalid Record - All letters must be upper case
10000011	Invalid Filer Sequence Number
10000012	Invalid Taxpayer Name
10000013	Invalid TIN
10000014	Invalid Taxpayer PIN - Must be blank
10000015	Invalid Secondary TIN - Must be blank
10000016	Invalid Zip Code - Must be blank for non US country code
10000017	Invalid Zip Code
10000018	Invalid Signature Equivalent - Cannot be blank
10000019	Invalid Remittance Method - Cannot be blank
10000020	Invalid Routing Number
10000021	Invalid Routing Number - Must be blank
10000022	Invalid Account Number - Must be blank
10000023	Invalid Account Number - Cannot be blank
10000024	Invalid Account Type - Cannot be blank
10000025	Invalid Account Type - Must be blank
10000026	Invalid Prenote Account Flag - Must be blank

10000027	Invalid Prenote Account Flag - Must be Y or N
10000028	Invalid Taxpayer Type - Must be 'B' or 'I'
10000029	Invalid Tax Type Code
10000030	Invalid Tax Period - Must be YYYYMM
10000031	Invalid Settlement Date - Must be greater than today
10000032	Invalid Subcategory Code
10000033	Invalid Amount - Numbers only, leading zero filled
10000034	Invalid Amount - Cannot be zero
10000035	Subcategory Amounts do not add up to Payment Amount
10000036	Previous subcategory code has no data, subsequent codes are not allowed
10000037	Invalid Action Code - Must be 'P'
10000038	Invalid Country Code - Cannot be blank
10000039	Invalid Import Record Size
10000040	Invalid Amount - Exceeds maximum allowed

Appendix B: Response Files Table Design

Table N: Response Files Table Columns

BatchFilerID	**Type = Text**	**Size = 9**
	Allow Zero Length:	No
	Attributes:	Variable Length
	Collating Order:	General
	Column Hidden:	No
	Column Order:	Default
	Column Width:	Default
	Data Updatable:	No
	Description:	The Batch filer ID
	Ordinal Position:	1
	Required:	No
	Source Field:	BatchFilerID
	Source Table:	tblResponseFileList
	Validate On Set:	No
MasterInquiryPIN	**Type = Text**	**Size = 4**
	Allow Zero Length:	No
	Attributes:	Variable Length
	Collating Order:	General
	Column Hidden:	No
	Column Order:	General
	Column Width:	1815
	Data Updatable:	No
	Description:	MIP
	Input Mask:	Password
	Ordinal Position:	2
	Required:	No
	Source Field:	MasterInquiryPIN
	Source Table:	tblResponseFileList
	Validate On Set:	No

FileDesignator	**Type = Text**	**Size = 8**
	Allow Zero Length:	No
	Attributes:	Variable Length
	Collating Order:	General
	Column Hidden:	No
	Column Order:	Default
	Column Width:	Default
	Data Updatable:	No
	Description:	will be YYYYMMDD
	Ordinal Position:	3
	Required:	No
	Source Field:	FileDesignator
	Source Table:	tblResponseFileList
	Validate On Set:	No
FilerSeqNum	**Type = Text**	**Size = 3**
	Allow Zero Length:	No
	Attributes:	Variable Length
	Collating Order:	General
	Column Hidden:	No
	Column Order:	Default
	Column Width:	Default
	Data Updatable:	No
	Description:	001-999
	Ordinal Position:	4
	Required:	No
	Source Field:	FilerSeqNum
	Source Table:	tblResponseFileList
	Validate On Set:	No
Type	**Type = Text**	**Size = 1**
	Allow Zero Length:	No
	Attributes:	Variable Length

	Collating Order:	General
	Column Hidden:	No
	Column Order:	Default
	Column Width:	585
	Data Updatable:	No
	Description:	E-Enrollment P-Payment
	Ordinal Position:	5
	Required:	No
	Source Field:	Type
	Source Table:	tblResponseFileList
	Validate On Set:	No
DateSent	**Type = Date/Time**	**Size = 8**
	Allow Zero Length:	No
	Attributes:	Fixed Size
	Collating Order:	Unknown or Undefined
	Column Hidden:	No
	Column Order:	Default
	Column Width:	960
	Data Updatable:	No
	Description:	The date the file was sent
	Ordinal Position:	6
	Required:	No
	Source Field:	DateSent
	Source Table:	tblResponseFileList
	Validate On Set:	No

Table O: Response Files Table Indexes

FileDate	**# of Fields = 1**	
	Clustered:	No
	Distinct Count:	0
	Foreign:	No
	Ignore Nulls:	No
	Name:	FileDate
	Primary:	No
	Required:	No
	Unique:	No
	Fields:	FileDesignator, Ascending
FilerSeqNum	**# of Fields = 1**	
	Clustered:	No
	Distinct Count:	0
	Foreign:	No
	Ignore Nulls:	No
	Name:	FilerSeqNum
	Primary:	No
	Required:	No
	Unique:	No
	Fields:	FilerSeqNum, Ascending

CLAIMS

What is claimed is:

1. A method for facilitating electronic payment of taxes, comprising the steps of:

(a) identifying, on a first computer, a file including tax data for a taxpayer;

(b) validating that said tax data meets pre-defined criteria; and

(c) sending said file to a second computer, said second computer enabling electronic payment of taxes by said taxpayer.

2. The method of claim 1 wherein said first computer is a personal computer.

3. The method of claim 1 wherein said second computer is a server for an electronic tax payment system.

4. The method of claim 3 wherein said server is a transaction processing server for an electronic federal tax payment system.

5. The method of claim 1 wherein said file includes tax data for a plurality of taxpayers.

6. The method of claim 1 wherein said first computer includes a communications module, wherein said communications module is pre-configured with a parameter for communications with said second computer.

7. The method of claim 6 wherein said parameter is an IP address of said second computer.

8. The method of claim 6 wherein said parameter is a port number of said second computer.

9. The method of claim 1 wherein said pre-defined criteria includes a data format edit.

10. The method of claim 9 wherein said data format edit is a nine digit taxpayer identification number (TIN).

11. The method of claim 9 wherein said data format edit is a four digit taxpayer personal identification number (PIN).

12. The method of claim 1 wherein said pre-defined criteria includes a data content edit.

13. The method of claim 12 wherein said data content edit is a valid settlement date.

14. The method of claim 12 wherein said data content edit is valid tax type code.

15. The method of claim 12 wherein said data content edit is valid tax period.

16. The method of claim 1 wherein said enabling electronic payment of taxes includes enrolling said taxpayer for future payments.

17. The method of claim 1 wherein said enabling electronic payment of taxes includes initiating electronic payment.

18. A method for precluding electronic payment of taxes, comprising the steps of:

(a) identifying, on a first computer, a file including tax data for a taxpayer;

(b) validating that said tax data meets pre-defined criteria; and

(c) sending said file to a second computer, said second computer disabling electronic payment of taxes by said taxpayer.

19. A system for facilitating electronic payment of taxes, comprising:

(a) control logic configured to identify, on a first computer, a file including tax data for a taxpayer;

(b) control logic configured to validate that said tax data meets pre-defined criteria; and

(c) control logic configured to send said file to a second computer, said second computer enabling electronic payment of taxes by said taxpayer.

FIG. 1

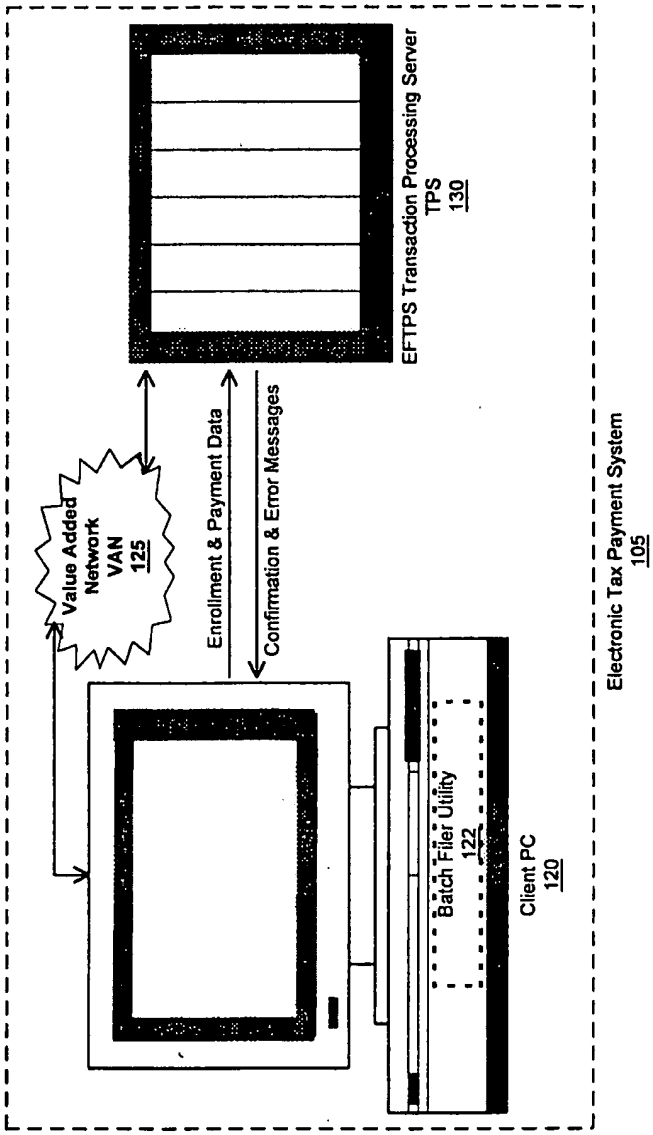

Electronic Tax Payment System
105
EFTPS Transaction Processing Server
TPS
130
Value Added
Network
VAN
125
Enrollment & Payment Data
Confirmation & Error Messages
Batch Filer Utility
122
Client PC
120

FIG. 2

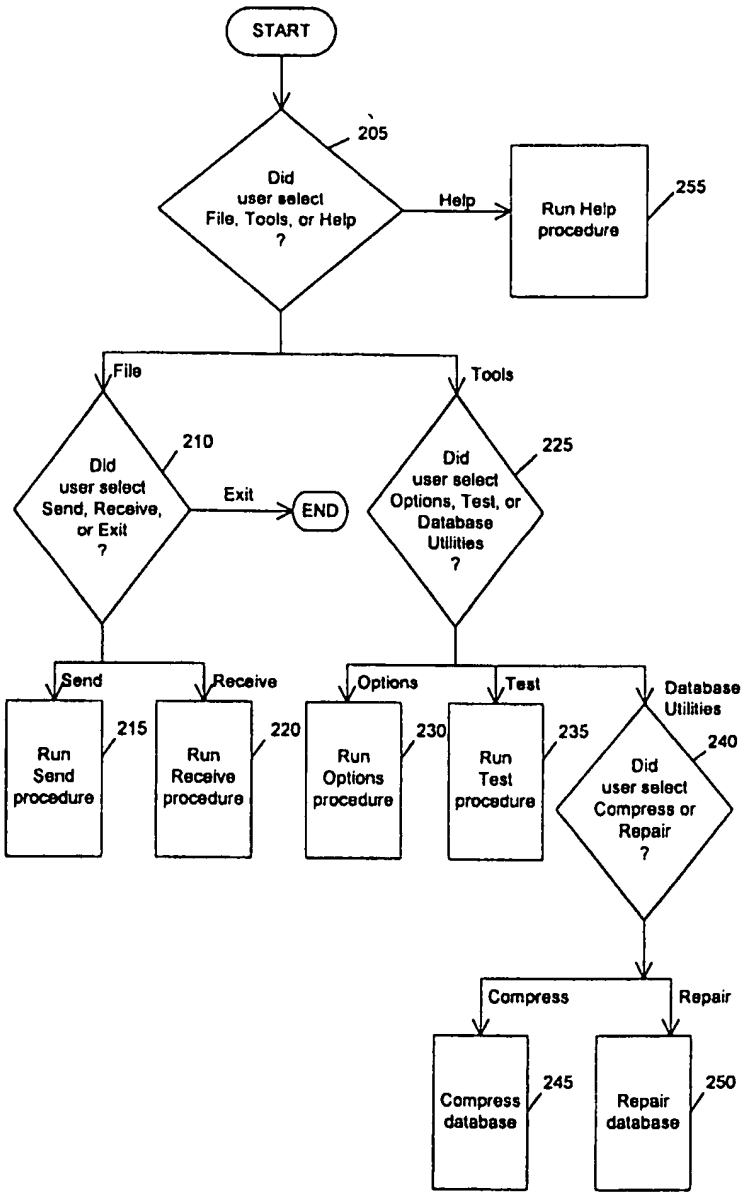

START
205
Did user select File, Tools, or Help ?
Help
Run Help procedure
255
File
Tools
Did user select Send, Receive, or Exit ?
210
Exit
END
Did user select Options, Test, or Database Utilities ?
225
Send
Receive
Options
Test
Database Utilities
Run Send procedure
215
Run Receive procedure
220
Run Options procedure
230
Run Test procedure
235
Did user select Compress or Repair ?
240
Compress
Repair
Compress database
245
Repair database
250

FIG. 3

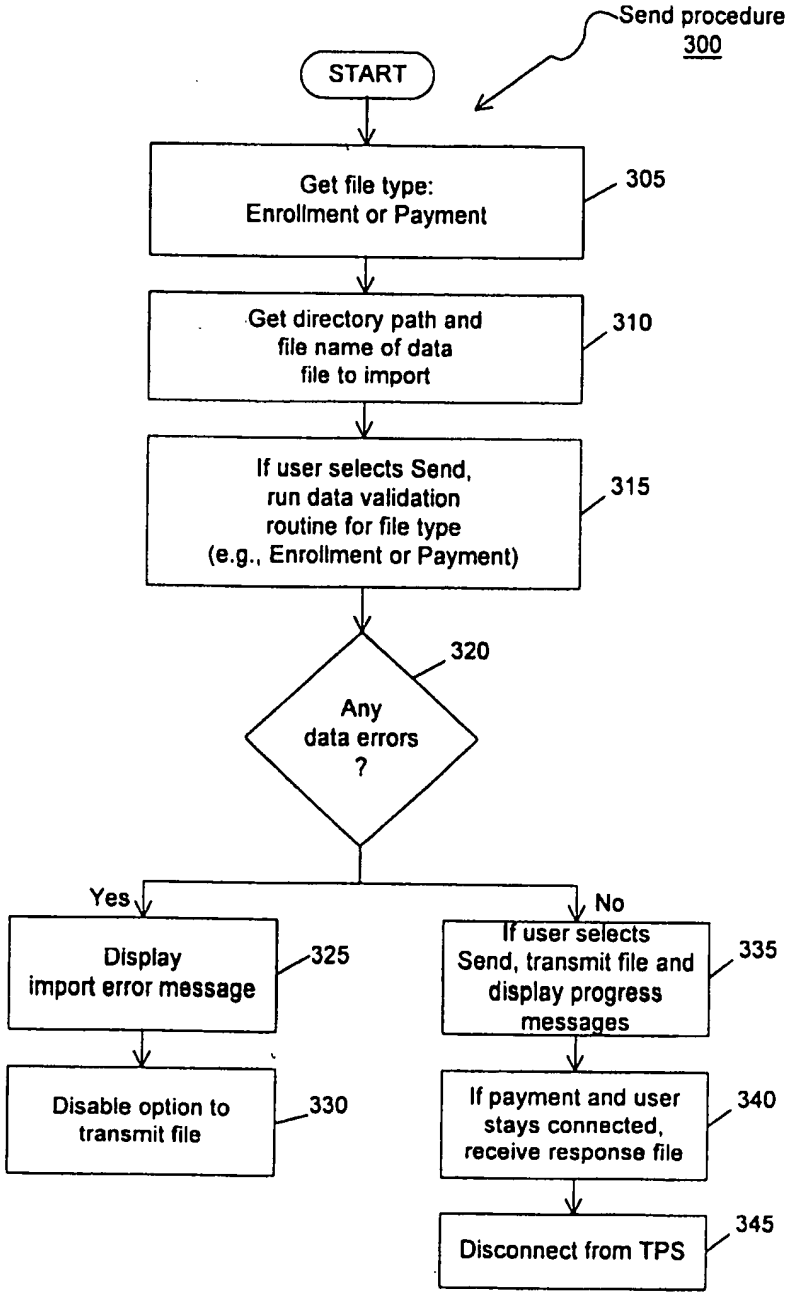

Send procedure
300
START
Get file type:
Enrollment or Payment
305
Get directory path and
file name of data
file to import
310
If user selects Send,
run data validation
routine for file type
(e.g., Enrollment or Payment)
315
320
Any
data errors
?
Yes
No
Display
import error message
325
Disable option to
transmit file
330
If user selects
Send, transmit file and
display progress
messages
335
If payment and user
stays connected,
receive response file
340
Disconnect from TPS
345

FIG. 4

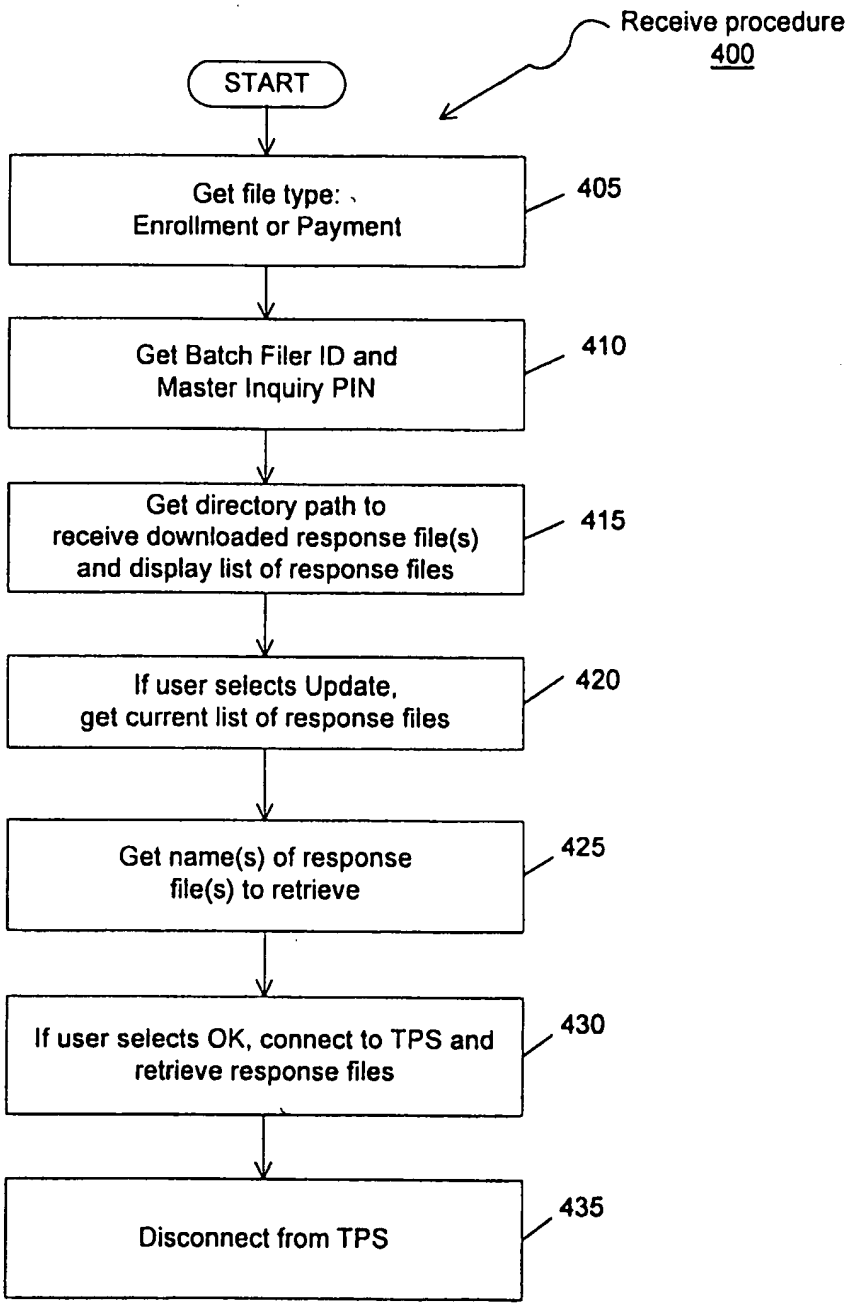

Receive procedure
400
START
Get file type:
Enrollment or Payment
405
Get Batch Filer ID and
Master Inquiry PIN
410
Get directory path to
receive downloaded response file(s)
and display list of response files
415
If user selects Update,
get current list of response files
420
Get name(s) of response
file(s) to retrieve
425
If user selects OK, connect to TPS and
retrieve response files
430
Disconnect from TPS
435

FIG. 5

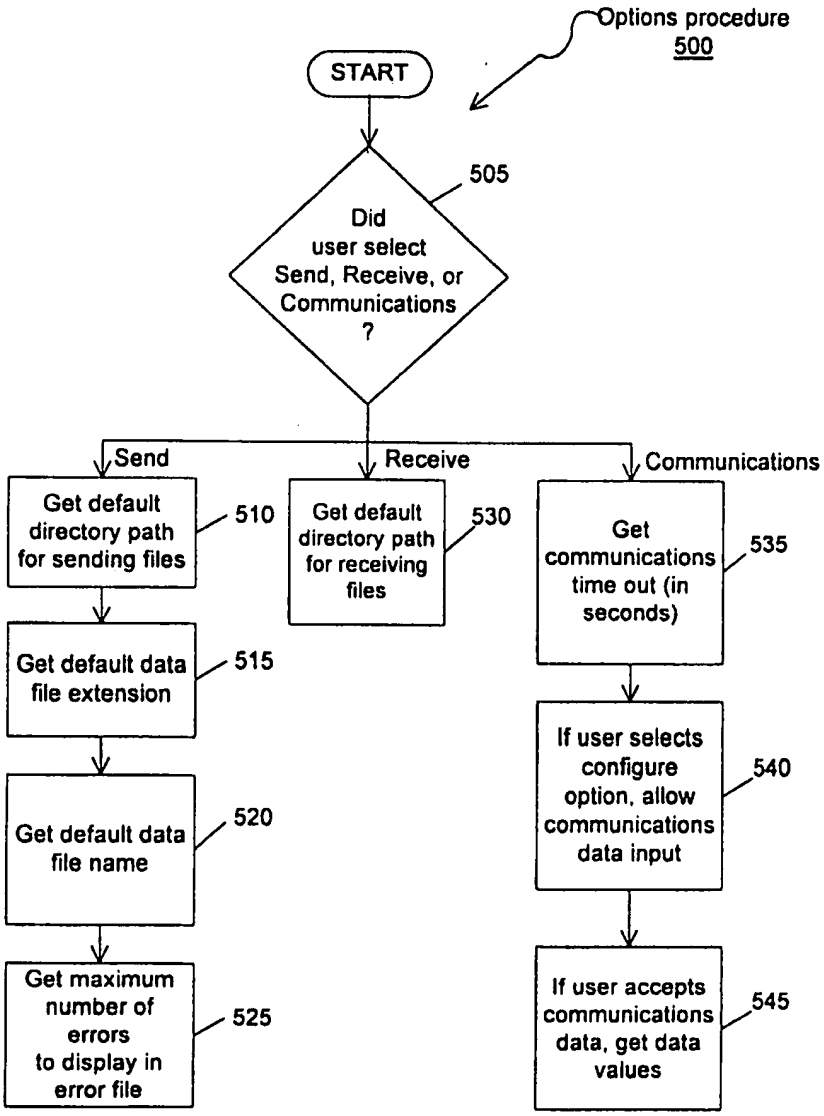
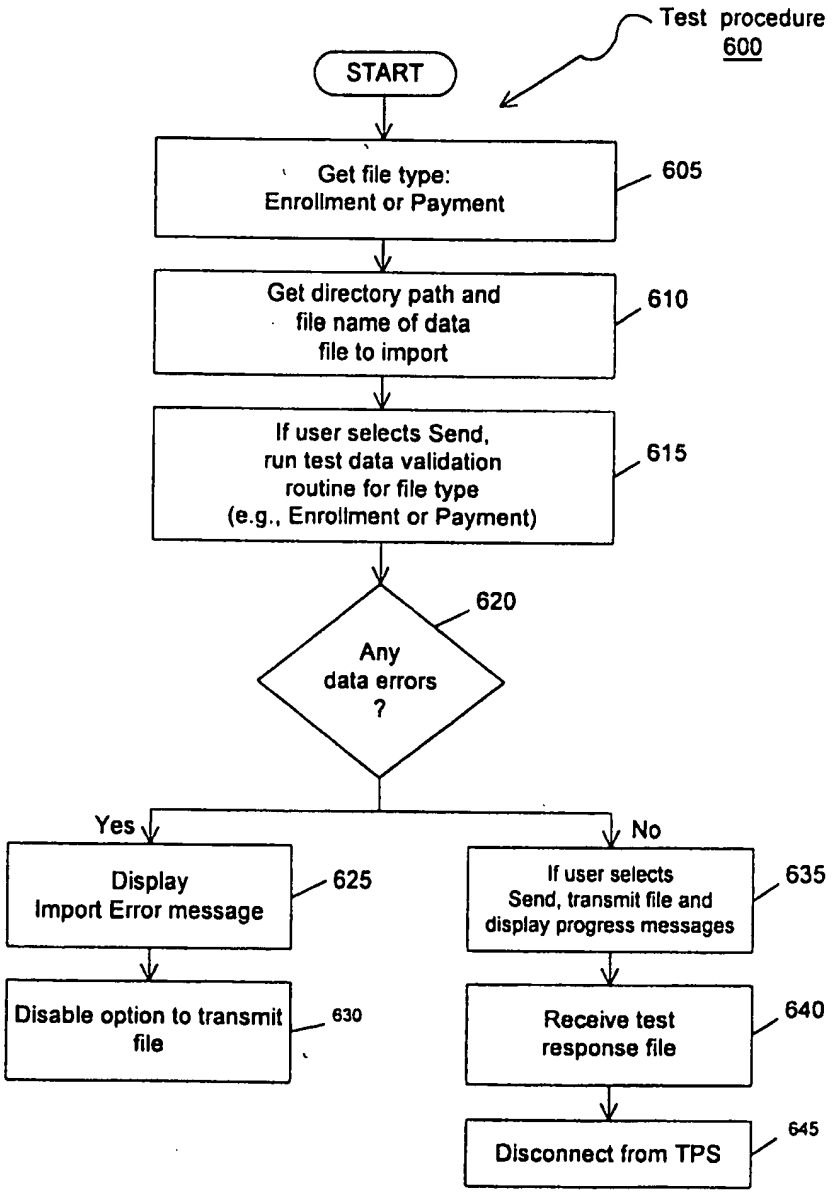

Options procedure
500
START
505
Did user select Send, Receive, or Communications ?
Send
Receive
Communications
Get default directory path for sending files
510
Get default data file extension
515
Get default data file name
520
Get maximum number of errors to display in error file
525
Get default directory path for receiving files
530
Get communications time out (in seconds)
535
If user selects configure option, allow communications data input
540
If user accepts communications data, get data values
545

FIG. 6


Test procedure
600
START
Get file type:
Enrollment or Payment
605
Get directory path and
file name of data
file to import
610
If user selects Send,
run test data validation
routine for file type
(e.g., Enrollment or Payment)
615
620
Any
data errors
?
Yes
No
Display
Import Error message
625
Disable option to transmit
file
630
If user selects
Send, transmit file and
display progress messages
635
Receive test
response file
640
Disconnect from TPS
645

INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/US 98/14664

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 193 057 A (LONGFIELD ROSS N) 9 March 1993 see figure 1 see abstract; claim 3 see column 3, line 12 - column 4, line 18	1-19
A	US 5 138 549 A (BERN DAVID A) 11 August 1992 see abstract; claim 12 see column 7, line 56 - line 65; figure 2	1,18,19

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
24 November 1998	08/12/1998

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Suendermann, R

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INTERNATIONAL SEARCH REPORT

Inte .onal Application No
PCT/US 98/14664

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	SRAEEL H: "Paying Uncle Sam electronically: banks, corporates plan for EFTPS" BANK SYSTEMS + TECHNOLOGY, JAN. 1995, USA, vol. 32, no. 1, page 20, 22 XP002085618 ISSN 1045-9472 see page 20, column 1, line 37 - column 3, line 51 ---	1,18,19
A	STEINBORN D: "NAFTA also brings you electronic taxes" ABA BANKING JOURNAL, JULY 1994, USA, vol. 86, no. 7, pages 66, 68-69, XP002085619 ISSN 0194-5947 DATA EXCHANGE, page 66 -----	1,18,19

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inter ional Application No
PCT/US 98/14664

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5193057 A	09-03-1993	US 4890228 A	26-12-1989
		US 5724523 A	03-03-1998
US 5138549 A	11-08-1992	NONE	